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Jawaharlal Nehru

“Step Out From the Old to the New”

IS 3288-2 (1986): Glossary of Terms Relating to Copper and Copper Alloys, Part 2: Unwrought form and cast form [MTD 8: Copper and Copper Alloys]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

**GLOSSARY OF TERMS
RELATING TO COPPER AND COPPER ALLOYS
PART 2 UNWROUGHT AND CAST FORM**

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

*Indian Standard*GLOSSARY OF TERMS
RELATING TO COPPER AND COPPER ALLOYS

PART 2 UNWROUGHT AND CAST FORM

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Indian Standard

GLOSSARY OF TERMS RELATING TO COPPER AND COPPER ALLOYS

PART 2 UNWROUGHT AND CAST FORM

0. FOREWORD

0.1 This Indian Standard (Part 2) was adopted by the Indian Standards Institution on 30 October 1986, after the draft finalized by the Copper and Copper Alloys Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 IS : 3288 (Part 1) covering terms for cast form and wrought form (main) was first published in 1965 and subsequently revised in 1973 and 1981. While reviewing the standard, the Sectional Committee decided to revise Part 1 and issue 7 more parts for making glossary more comprehensive by modifying the definition of several terms and by including many more terms commonly used in copper industry. The parts are:

Part 1 Materials (*third revision*)

Part 2 Unwrought and cast form

Part 3 Wrought form

Part 4 Processing

Part 5 Heat treatment

Part 6 Finishes

Part 7 Dimensional surfaces and structural characteristics

Part 8 Packing

0.3 This standard is intended mainly to cover technical definitions of terms relating to copper and copper alloys, and it does not necessarily include all the legal meanings of the terms. It is hoped that this standard will help in establishing a generally recognized usage for various terms encountered in the copper industry and eliminate any confusion which may sometimes arise due to individual interpretation of terms used in the industry.

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0.4 In the preparation of this standard assistance has been derived from the following:

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|----------------|--------------------------------------------------|
| a) ISO/197 | Copper and copper alloys — Terms and definitions |
| ISO 197/1-1983 | Part 1 Materials |
| ISO 197/2-1983 | Part 2 Unwrought products (Refinery shapes) |
| ISO 197/3-1983 | Part 3 Wrought products |
| ISO 197/4-1983 | Part 4 Castings |
| ISO 197/5-1980 | Part 5 Methods of processing and treatment |

issued by the International Organization for Standardization (ISO).

- b) BS 1420 : 1965 Glossary of terms applicable to wrought products in copper, zinc and their alloys; issued by the British Standards Institution.
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1. SCOPE

1.1 This standard (Part 2) defines terms used for various cast forms and casting made from copper and copper alloys.

2. UNWROUGHT FORM AND DEFINITIONS

2.1 Unwrought Products — A general term for unwrought products obtained by refining or melting and casting processes, intended for further processing. Examples of unwrought products are cathodes, wire bars, cakes, billets, ingots, etc.

2.2 Billet — A solid casting of regular shape intended for further working.

2.3 Billet Slug — Casting of regular shape either solid or hollow used for subsequent working.

2.3.1 Hollow Billet — An annular product intended for subsequent tube or hollow rod production.

2.3.2 Wire Bar — A cast unwrought product normally of approximately square cross-section, with or without tapered ends, principally used for rolling into drawing stock or flat products for subsequent processing into wire, strip or profile.

2.4 Cake and Slab — A cast unwrought product of rectangular cross-section, generally used for rolling into plate, sheet, strip or profiles.

2.5 Cathode — A rough, flat, unwrought product made by electrolytic deposition and normally used for remelting.

2.6 Ingot — A cast product in a form suitable for remelting primarily for the production of copper and copper alloys.

3. CASTING TERMS AND DEFINITIONS

3.1 Casting — A general term for products at or near net shape, formed by solidification of a molten metal or alloy in a mould.

3.2 Sand Casting — A casting formed in a sand mould.

3.3 Centrifugal Casting — A casting formed by centrifugal force in a rotating permanent mould, the major axis of the casting coinciding with the axes of rotation.

3.4 Continuous Casting — A casting formed by supplying metal continuously to a mould, and withdrawing it continuously from some other part of the mould as it solidifies, the length being independent of the mould dimensions.

3.5 Permanent Mould Casting (Chill Casting) — A casting formed in a metal mould, the molten metal being introduced by gravity or low-pressure feed.

3.6 Pressure Die Casting (Die Casting) — A casting formed in a metal mould, the molten metal being introduced under high pressure.

INTERNATIONAL SYSTEM OF UNITS (SINUTS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane Angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	$1 \text{ N} = 1 \text{ kg.m/s}^2$
Energy	joule	J	$1 \text{ J} = 1 \text{ N.m}$
Power	watt	W	$1 \text{ W} = 1 \text{ J/s}$
Flux	weber	Wb	$1 \text{ Wb} = 1 \text{ V.s}$
Flux density	tesla	T	$1 \text{ T} = 1 \text{ Wb/m}^2$
Frequency	hertz	Hz	$1 \text{ Hz} = 1 \text{ c/s (s}^{-1}\text{)}$
Electric conductance	siemens	S	$1 \text{ S} = 1 \text{ A/V}$
Electromotive force	volt	V	$1 \text{ V} = 1 \text{ W/A}$
Pressure, stress	pascal	Pa	$1 \text{ Pa} = 1 \text{ N/m}^2$